

## **A new genus and species of the spider family Agelenidae from western Sichuan Province, China (Arachnida: Araneae)**

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**A new genus and species of the spider family Agelenidae from western Sichuan Province, China (Arachnida: Araneae).** - *Ageleradix sichuanensis*, a new genus and new species, is reported based on specimens from western Sichuan, China. *Ageleradix* gen. n. is distinguished from the other genera of Agelenidae by having a special sclerite between tegulum and embolus in males, a well-developed posterior plate in the epigynum and a broad copulatory bursa in females. Two species are included in the new genus, the type species and *Ageleradix cymbiforma* (Wang, 1991) comb. n.

**Keywords:** Taxonomy - *Ageleradix* - *Agelescape* - new combination.

### **INTRODUCTION**

Sichuan Province is located in the Upper Yangtze Valley in the southwest part of China. It covers an area of 569,000 square kilometres and has an estimated population of over 70 million people. Lying along the transition zone between the Sichuan Basin and the Qinghai-Tibetan Plateau, western Sichuan has an unusual geography and weather conditions, which have given rise to a variety of landforms and habitats.

A collection trip to western Sichuan in summer 2004 yielded a very unusual new agelenid species, which is here assigned to the new genus *Ageleradix* gen. n. A detailed description of this genus and its type species, *Ageleradix sichuanensis* sp. n., is given in the following.

### **MATERIAL AND METHODS**

Measurements are given in millimetres. Eye diameters were measured at the widest part. Leg measurements are given as: Total length (femur, patella, tibia, metatarsus, tarsus). Chaetotaxy follows Thaler & Knoflach (1998): v', v'' position pro-, retroventral, l', l'' pro-, retrolateral, d dorsal; subscript a and 2 denote apical position and number of spines, respectively; pairs of spines are given in parentheses,

whorls of spines in square brackets. Terms used in the text and figure legends mainly follow Levy (1996) and Wang (1997). Abbreviations used in text and figures are: ALE – anterior lateral eye; ALS – anterior lateral spinneret; AME – anterior median eye; C – conductor; CB – copulatory bursa; D – diverticula; E – embolus; FD – fertilization duct; MA – median apophysis; MOQ – median ocular quadrangle; PA – patellar apophysis; PLE – posterior lateral eye; PLS – posterior lateral spinneret; PME – posterior median eye; PMS – posterior median spinneret; PP – posterior plate of epigynum; R – radix; RTA – retrolateral tibial apophysis; S – spermatheca; SC – scape; TP – tegular process.

All type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing (IZCAS) and in the Muséum d'histoire naturelle, Genève, Switzerland (MHNG).

## TAXONOMY

### *Ageleradix* gen. n.

TYPE SPECIES: *Ageleradix sichuanensis* sp. n.

SPECIES INCLUDED: Two species are here placed in this new genus: *Ageleradix sichuanensis* sp. n. and *Ageleradix cymbiforma* (Wang, 1991) comb. n. which is transferred from *Agelena*.

ETYMOLOGY: The generic name is derived from the words “Agelena” and “radix”; the gender is feminine.

DIAGNOSIS: In its general appearance (Fig. 1), this new genus resembles two other Palaearctic genera, *Agelena* and *Agelescape*, which construct funnel webs among bushes and in grass. In the shape of their epigynum, *Ageleradix* gen. n. females are similar to those of *Agelescape* by having a scape (Fig. 10), but can be distinguished by having a well-developed posterior plate in their epigynum and a broad copulatory bursa (Figs 10-11). Males can be easily distinguished from those of *Agelena* and *Agelescape* by having a radix between tegulum and embolus, by their basal median apophysis and by a strong and broad conductor (Figs 3-7). The new genus is distinct from *Agelena* by females having a scape extending from the anterior rim of the epigynum (Fig. 10).

DESCRIPTION: Body shape, coloration and eye arrangement as in *Agelena* and *Agelescape* (Fig. 1); body covered with feather-like hairs (Fig. 2); ALE biggest, AME smallest; cheliceral groove with 3 promarginal and 3 retromarginal teeth; epigynum with a plate extending from posterior rim (Fig. 10); spermathecae widely separated from each other; copulatory bursae well-developed (Fig. 11); male palp with small retrolateral tibial apophysis and with indistinct patellar apophysis; tegulum with process; conductor very strong, slightly modified into a shallow concavity housing the distal end of the embolus; embolus originating centrally, with broad base and pointed distal end; radix developed as a partly serrated additional sclerite between tegulum and embolus; median apophysis situated basally on the palpal organ (Figs 3-9).

DISTRIBUTION: Sichuan, China.

*Ageleradix sichuanensis* sp. n.

Figs 1-11

HOLOTYPE: ♂ (IZCAS), Jintang Town, Kangding County (30.0° N, 101.9° E), Sichuan Province, China, July 19, 2004.

PARATYPES: 1 ♂ (IZCAS), Yutong Town, Kangding County (30.0° N, 101.9° E), Sichuan Province, China, August 4, 1981. — 6 ♀ and 6 ♂ (MHNG), Jintang Town, Kangding County, July 18-19, 2004. — 1 ♂ (IZCAS), Changpinggou Valley, Mt Siguniang (31.1° N, 102.9° E), Xiaojin County, August 1, 2004. — 2 ♀ and 4 ♂ (IZCAS), Waba Village, Geshizha Town, Danba County (30.8° N, 101.9° E), July 30, 2004. — 1 ♀ and 2 ♂ (IZCAS), Meirengu Town, Danba County, July 31, 2004. — 1 ♀ (IZCAS), Daxue Village, Geshizha Town, Danba County (30.8° N, 101.9° E), July 30, 2004. — 1 ♂ (IZCAS), Geshizha Town, Danba County, July 30, 2004. — 5 ♂ (IZCAS), Kungyu Town (30.5° N, 102.0° E), Danba County, July 30, 2004. All type material was collected in the Sichuan Province by Dr Xiang Xu, Mr Zhengtian Zhang, Mr Yucheng Lin, and Ms Qian Wang.

ETYMOLOGY: The specific name derives from the name of the province in which the types were collected.

DIAGNOSIS: This new species can be distinguished from *A. cymbiforma* by having a scape extending from the anterior rim of epigynum and globular spermathecae in females, and by the evidently different shape of the conductor and the presence of a radix in males.

DESCRIPTION OF MALE: Total length 7.64-9.84. Holotype 9.27 long; carapace length 4.00, width 2.91; abdomen length 5.27, width 2.73. Two eye rows strongly procurved; in dorsal view AME in the middle of an open circle formed by the other six eyes. AME 0.12, ALE 0.19, PME 0.15, PLE 0.16; AME-AME 0.05, AME-ALE 0.07, PME-PME 0.10, PME-PLA 0.08; MOQ length 0.36, front width 0.29, back width 0.40; clypeus height 0.17. Body covered with tiny white or grey featherlike hairs (Fig. 2). Carapace brown; head region clearly narrower than thorax region in dorsal view (Fig. 1). Fovea long, longitudinal. Chelicerae red-brown, promargin and retromargin each with 3 teeth on groove. Labium wider than long. Sternum yellow-brown, its distal end slightly inserted into coxa IV. Legs thin and long. Tibiae I-IV with two rows of dorsal trichobothria; metatarsi I-IV and tarsi I-IV with single row of trichobothria dorsally. Chaetotaxy (slightly variable): Femur I d 1'' (d 1') (1' 1''); II/III d (1' 1'') d (1' 1''); IV d 1' d (1' 1''). Patella I-IV d 1' d<sub>a</sub>. Tibia I (v' v'') 1' (v' v'') 1' v<sub>a</sub>'; II v'' 1' (v' v'') 1' v<sub>a</sub>'; III (d v') (1' 1'') v' v'' d (1' 1'') (v<sub>a</sub>' v<sub>a</sub>''); IV (d v') (1' 1'') 1' (d 1'') (1' 1'') (v<sub>a</sub>' v<sub>a</sub>''). Metatarsus I (v' v'') 1' (v' v'') [1' v' v'']; II (v' v'') 1' (v' v'') [d 1' v' v'']; III [d 1' 1' v' v''] [d 1' 1''] (v' v'') [d<sub>2</sub> 1' 1' v' v'']; IV [d 1' 1' v' v''] v'' 1' v' 1' 1' (v' v'') [v<sub>2a</sub>' v<sub>2a</sub>''] l<sub>2a</sub>' l<sub>2a</sub>'']. Tarsus I-III 0; IV 1' 1' v' 1' 1'. Leg IV longest; leg formula: IV, I, II, III. Leg measurements: I: 16.64 (4.00+5.18+4.91+2.55); II: 15.73 (3.91+4.73+4.73+2.36); III: 15.28 (3.82+4.55+4.64+2.27); IV: 20.10 (4.82+5.82+6.55+2.91). Abdomen much longer than wide, sides darker than middle of dorsum (Fig. 1). ALS 0.62 long; basal article of PLS 0.52 long, apical article 0.62 long; AMS, PMS and PLS with conspicuous gland spigots. Male palp with indistinct patellar apophysis; conductor strong, broad, and slightly modified into a shallow concavity; embolus originating centrally, with broad base and pointed distal end; radix partly covered with denticles; tegulum with a cone-shaped process; median apophysis palmate (Figs 3-9).



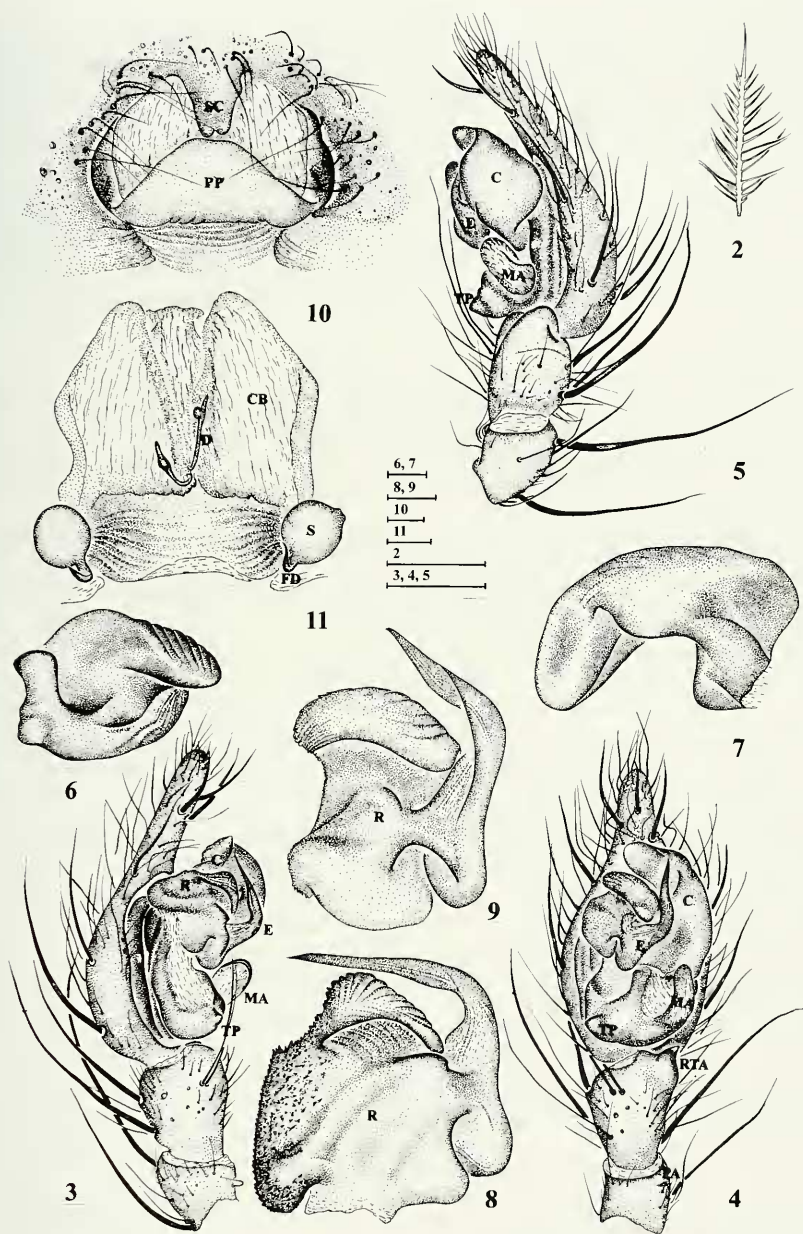
FIG. 1

*Ageleradix sichuanensis* sp. n., male from Sichuan, China.

**DESCRIPTION OF FEMALE:** Colour and leg formula as in male. Measurements very variable. Total length 7.64-8.73. A specimen from Jintang Town, Kangding County 9.27 long; carapace length 3.64, width 2.55; abdomen length 5.09, width 3.14. AME 0.13, ALE 0.18, PME 0.14, PLE 0.16; AME-AME 0.05, AME-ALE 0.07 PME-PME 0.12, PME-PLE 0.10; MOQ length 0.39, front width 0.26, back width 0.36; clypeus height 0.13. Chaetotaxy (slightly variable): Femur I d (d l') (l' l''); II-IV d d (l' l''). Patella I-IV d l d<sub>a</sub> Tibia I (v' v'') l' l' (v' v'') (d l'); II (d v'') l' v' d l'; III/IV (d v') (l' l'') (v' d) (l' l'') v<sub>a</sub>'. Metatarsus I/II (v' v'') l' (v' v'') [l' v' v'']; III [l' v' v' v''] l' l' d v' l' [d<sub>2</sub> l' l' v' v'']; IV [d l' l' v''] v' l' v' (l' l'') (v' v'') [l<sub>2</sub> l<sub>2</sub>' v' v'']. Leg measurements: I: 11.10 (3.00+3.73+2.55+1.82); II: 10.36 (2.91+3.36+2.45+1.64); III: 10.28 (2.82+3.18+2.73+1.55); IV: 14.18 (3.64+4.27+4.18+2.09). ALS 0.60 long; basal article of PLS 0.45 long, apical article 0.65 long. Epigynal atrium large. Long scape extending over most part of atrium; distal end of scape slightly bifid and almost in contact with triangular plate extending from posterior rim of epigynum. Broad, membranous copulatory bursae bearing a pair of threadlike diverticula; diverticula with a slightly swollen part; copulatory bursae connected internally to a pair of globular spermathecae, to the outside through an atrium; fertilization duct distinct (Figs 10-11).

**DISTRIBUTION:** Only known from the type locality.





FIGS 2-11

*Ageleradix sichuanensis* sp. n. (2) Featherlike hair. (3) Left male palp, prolateral view. (4) Same as in 3, ventral view. (5) Same, retrolateral view. (6) Conductor (separated from palpal organ), prolateral view. (7) Same, ventral view. (8) Embolus (separated from palpal organ), prolateral view. (9) Same, ventral view. (10) Epigynum, ventral view. (11) Same, dorsal view. Scale bars: 2, 6-11= 0.1 mm; 3-5= 0.5 mm.

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